

**Commonwealth of Kentucky  
Division for Air Quality**

**PERMIT APPLICATION SUMMARY FORM**

Completed by: Timothy J. Rust

GENERAL INFORMATION:

Name:	East Kentucky Power Cooperative, Inc. J.K. Smith Generating Station
Address:	Irvine Road, Clark County, Kentucky Near the community of Trapp, Kentucky
Date application received:	March 6, 2000
SIC/Source description:	4911/Electric power generation
Plant ID:	21-049-00027
Application log number:	APE20050002
Permit number:	V-05-070

APPLICATION TYPE/PERMIT ACTIVITY:

<input checked="" type="checkbox"/> Initial issuance	<input type="checkbox"/> General permit
<input type="checkbox"/> Permit modification	<input type="checkbox"/> Conditional major
__Administrative	<input checked="" type="checkbox"/> Title V
__Minor	<input type="checkbox"/> Synthetic minor
__Significant	<input checked="" type="checkbox"/> Operating
<input type="checkbox"/> Permit renewal	<input type="checkbox"/> Construction/operating

COMPLIANCE SUMMARY:

<input type="checkbox"/> Source is out of compliance	<input type="checkbox"/> Compliance schedule included
<input checked="" type="checkbox"/> Compliance certification signed	

APPLICABLE REQUIREMENTS LIST:

<input type="checkbox"/> NSR	<input checked="" type="checkbox"/> NSPS	<input checked="" type="checkbox"/> SIP
<input type="checkbox"/> PSD	<input type="checkbox"/> NESHAPS	<input type="checkbox"/> Other
<input type="checkbox"/> Netted out of PSD/NSR	<input type="checkbox"/> Not major modification per 401 KAR 51:017, 1(23)(b) or 51:052,1(14)(b)	

MISCELLANEOUS:

- ☒ Acid rain source
- ☐ Source subject to 112(r)
- ☐ Source applied for federally enforceable emissions cap
- ☐ Source provided terms for alternative operating scenarios
- ☐ Source subject to a MACT standard
- ☐ Source requested case-by-case 112(g) or (j) determination
- ☐ Application proposes new control technology
- ☒ Certified by responsible official
- ☒ Diagrams or drawings included
- ☐ Confidential business information (CBI) submitted in application
- ☐ Pollution Prevention Measures
- ☐ Area is non-attainment (list pollutants):

EMISSIONS SUMMARY:

Pollutant	Actual (tpy)**	Potential (tpy)**
PM	29.9	347
SO <sub>2</sub>	260.1	6396
NO <sub>x</sub>	278.9	4487
CO	49.7	1101
VOC	15.7	249
LEAD	0.2	0.2
HAP ≥ 10 tpy Sulfuric Acid (CAS 07664-93-9)	0.01	132

\*\*Actual and Potential based on EIS survey 2004

SOURCE PROCESS DESCRIPTION:

East Kentucky Power Cooperative, Inc. is an existing source with natural gas fired peaking units for electricity generation at the J.K. Smith Generating Station in Clark County, Kentucky. The source has two operating permits that have undergone public and U.S.EPA review (01-07-1993 and 06-13-2001 respectively), however, the final Title V permits were not issued. The first construction operating permit was issued on March 24, 1993 (C-93-045) for the construction and operation of five simple cycle combustion turbines. Three (3) ABB GT 11N2 and one (1) General Electric 7EA combustion turbines were constructed and are currently being operated. The second prevention of significant deterioration (PSD) construction/operating permit was issued on July 27, 2001 (V-01-004) for the additional construction and operation of three (3) General Electric 7EA combustion turbines. The seven total units are each capable of burning both natural gas (more than 90% of the time) or #2 fuel oil (less than 10% of the time) and are all currently in commercial operation. A Title V Permit application for emission units 1-4 (combustion turbines SCT 1, SCT 2, SCT 3, and SCT 4) received on June 29, 1999 was called administratively complete on August 28, 1999 but has not been drafted or issued. A Phase II acid rain application for the emission units 1-4 (combustion turbines SCT 1, SCT 2, SCT 3, and SCT 4) received on May 17, 2000 has not been drafted or issued. The Phase II acid rain application for emission units 5-7 (combustion turbines SCT 5, SCT 6, and SCT 7) received on March 7, 2000 was also not drafted or issued along with the issuance of the PSD permit (V-01-004) for those units.

The Division will issue a source-wide proposed permit to incorporate the construction permit, PSD permit, draft Phase II Acid Rain and draft NO<sub>x</sub> Budget permits for all combustion turbines (CTs). Given the details stated above, the Phase II Acid Rain and the NO<sub>x</sub> Budget permit sections of the permit will have the draft watermark to indicate that the public has not reviewed this portion of the combined permits. The new facility permit number V-05-070, will consolidate the authority of any previously issued construction, PSD permit terms and conditions for the various emission units and incorporate all requirements of those existing permits into one single permit for this source. For continuity, the most current log number and the completeness dates will be used as general numbers for this permit.

#### EMISSIONS AND OPERATING CAPS DESCRIPTION:

The Permittee shall not operate combustion turbine units 04, 05, 06, and 07 below 90% load, except during periods of startup and shutdown. Each combustion turbine shall be fired on natural gas not less than 90% of the actual operation hours, and # 2 fuel oil not more than 10% of the actual operating hours during any consecutive 12- month period. Startup shall be defined as going from 0% load up to or above 90% load and shutdown means going from operating load down to 0% load.

Elapsed time during each startup or shutdown for each combustion turbine shall not exceed two (2) hours. Each combustion turbine shall not start up or shut down more than 200 times per year. The actual operation hours for emission units 01-04 shall not exceed 2500 hours each during any consecutive 12-month period.

The source will assure compliance for each pollutant with use of continuous emission monitors, approved alternative methods, and calculation procedures based on EPA methods to convert combustion turbine monitored concentrations to mass per unit time emission levels. In addition, there will be weekly monitoring of the hours of operation of each combustion turbine along with the usage rate and type of fuel combusted during that time.

Emissions are estimated to be less than 10 tons/year of any single hazardous air pollutant (HAP), and less than 25 tons/year of any combination of HAPs. The permittee will ensure compliance by calculating HAP emissions, tracking and totaling emissions, and by assuring Title V thresholds are not exceeded. A stack test for formaldehyde will not be required.